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USSN: 10/723,511

Docket No. 58581US002

Remarks

New claim 22 has been added as shown above. Support for this new claim may be found in the written description at, e.g., paragraph 0030. Following entry of this Amendment, claims 1-17 and 22 will be pending in this application.

Rejection of Claims 1-17 Under 35 U.S.C. §103(a)

Claims 1-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,881,393 B2 (Spitler et al.), on grounds that:

"Claim 1 in U.S. Patent 6,881,393 B2 discloses a process for making an oxide of lithium and transition metal, comprising:

milling lithium transition metal oxide particles, and

re-firing the lithium transition metal oxide particles.

"Claim 5 in U. S. Patent 6,881,393 B2 discloses that the milling is accomplished by wet-milling. Col. 5 lns. 2-3 sets forth that the drying may be part of the re-firing process. Please note that col. 5 lns. 10-11 in U.S. Patent 6,881,393 B2 discloses that the re-firing temperature is between 250 and 900 °C.

"The difference between the applicants' claims and U.S. Patent 6,881,393 B2 is that the applicants' claims are drawn to making a lithium transition metal oxide containing cobalt, manganese and nickel.

"Col. 2 lns. 31-33 in U.S. Patent 6,881,393 B2 sets forth that the transition metal is selected from Ti, Co, Mn, V, Fe and Ni.

"Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected Co, Mn and Ni out of the prior art group of Ti, Co, Mn, V, Fe and Ni set forth in col. 2 lns. 31-33 in U.S. Patent 6,881,393 B2 as the "transition metal" set forth in claim 1 in U.S. Patent 6,881,393 B2, in the manner set forth in the applicants' claims, because one skilled in the art would "envisage" each member of the prior art's genus: please see the discussion of the In re Petering 301, F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1980) court decision set forth in section 2144.08(II)(A)(4)(a) in the MPEP 8th Ed., Rev. 3 Aug. 2005.

USSN: 10/723,511

Docket No. 58581US002

"The difference between the applicants' claims and U.S. Patent 6,881,393 B2 is that the applicants' claims set forth that it is a slurry that results from the wet milling, and that it is this slurry that is heated, however it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made because it is reasonably expected that the same process making the same lithium and transition metal oxide by the same step of wet milling the lithium transition metal oxide particles will inherently produce the same claimed slurry (as a consequence of wet-milling): please note the discussion of the In re Wiseman 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) court decision set forth in section 2145(II) in the MPEP 8th Ed. Rev. 3 Aug. 2005 where it was determined that mere recognition of latent properties in the prior art does not render non-obvious an otherwise known invention. In this case, the production of a slurry is submitted to be one of these "latent properties" mentioned in the discussion of the In re Wiseman court decision.

"Note that col. 1 lns. 18-20 in U.S. Patent 6,881,393 B2 discloses that lithium-transition metal oxides are materials presently used or under development are for the electrodes of lithium ion batteries, in a manner rendering obvious the limitations of applicants' claims 15-17." (see the Office Action at pages 3-5).

Reconsideration is requested. Spitler et al. do not show or suggest the invention. Spitler et al. start with a coarse, low surface area oxide of lithium and a transition metal, mill the oxide particles to make them smaller, then re-fire the milled oxide particles to obtain particles with a desired surface area and size distribution (see e.g., col. 1, lines 12-15, col. 2, lines 25-29 and col. 2, line 62 thorough col. 3, line 2). Spitler et al. do not mill together "cobalt-, manganese-, nickel- and lithium-containing oxides or oxide precursors" as recited in rejected claim 1 – in Spitler et al.'s process the starting material for the milling step is an already-formed oxide of lithium and a transition metal.

Spitler et al. also do not show or suggest making a "four metal" cathode compound (see e.g., paragraph 0003) containing lithium, cobalt, manganese and nickel. Spitler et al. say that the transition metal may be "any metal commonly defined as transition metal, including but not limited to Ti, Co, Mn, V, F and Ni" (see column 2, lines 31-33) but do not employ an opening phrase such as "one or more of the following" or a closing phrase such as "and

USSN: 10/723,511

Docket No. 58581US002

mixtures thereof" let alone a statement that each of the transition metals cobalt, manganese and nickel would be employed. Spitler et al. also exemplify only two metal compounds (see Examples I and II). Notwithstanding the citation to In re Petering, Spitler et al. do not provide a motivation to form four metal cathode compounds.

Spitler et al. form various lithium spinel compounds (see e.g., col. 2, lines 38-52) but nowhere disclose or suggest making a "lithium-transition metal oxide compound" having an "O3 crystal structure" as recited in rejected claim 1. An O3 crystal structure and a spinel crystal structure are different, and Spitler et al. do not provide a motivation to form an O3 compound.


Applicants accordingly request withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-17 as being unpatentable over Spitler et al.

CONCLUSION

Applicants have made an earnest effort to resolve all issues and to place the application in condition for allowance. The Examiner is encouraged to call the undersigned attorney if there are any questions or suggestions regarding this Amendment or the application.

Respectfully submitted on behalf of
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USSN: 10/723,511

Docket No. 58581US002

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